**M1. Introduction to the C# Language and the .NET Framework**

**Objective:**

* *create a multi-file assembly;*
* *build a strong name assembly*;
* *add and remove assemblies from GAC*;
* *use ILDASM, JetBrains dotPeek tools to analyze the contents of assemblies*.

1. **Сборка будет состоять из двух модулей:**

|  |  |
| --- | --- |
|  |  |

1. **Делаем модуль из SecondModule.cs:**



1. Делаем общую сборку Result.exe:



1. Смотрим содержимое сборки Result через ildasm.exe:



1. Метаданные сборки Result:

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ScopeName : Result.exe

MVID : {6FF8926F-6216-4962-853B-34C86A401C0F}

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Global functions

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Global fields

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Global MemberRefs

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TypeDef #1 (02000002)

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TypDefName: Program (02000002)

Flags : [Public] [AutoLayout] [Class] [AnsiClass] [BeforeFieldInit] (00100001)

Extends : 01000002 [TypeRef] System.Object

Method #1 (06000001) [ENTRYPOINT]

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MethodName: Main (06000001)

Flags : [Public] [Static] [HideBySig] [ReuseSlot] (00000096)

RVA : 0x00002050

ImplFlags : [IL] [Managed] (00000000)

CallCnvntn: [DEFAULT]

ReturnType: Void

No arguments.

Method #2 (06000002)

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MethodName: .ctor (06000002)

Flags : [Public] [HideBySig] [ReuseSlot] [SpecialName] [RTSpecialName] [.ctor] (00001886)

RVA : 0x00002083

ImplFlags : [IL] [Managed] (00000000)

CallCnvntn: [DEFAULT]

hasThis

ReturnType: Void

No arguments.

TypeRef #1 (01000001)

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Token: 0x01000001

ResolutionScope: 0x23000001

TypeRefName: System.Runtime.CompilerServices.RuntimeCompatibilityAttribute

MemberRef #1 (0a000001)

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Member: (0a000001) .ctor:

CallCnvntn: [DEFAULT]

hasThis

ReturnType: Void

No arguments.

TypeRef #2 (01000002)

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Token: 0x01000002

ResolutionScope: 0x23000001

TypeRefName: System.Object

MemberRef #1 (0a000007)

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Member: (0a000007) .ctor:

CallCnvntn: [DEFAULT]

hasThis

ReturnType: Void

No arguments.

TypeRef #3 (01000003)

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Token: 0x01000003

ResolutionScope: 0x23000001

TypeRefName: System.Runtime.CompilerServices.CompilationRelaxationsAttribute

MemberRef #1 (0a000002)

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Member: (0a000002) .ctor:

CallCnvntn: [DEFAULT]

hasThis

ReturnType: Void

1 Arguments

Argument #1: I4

TypeRef #4 (01000004)

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Token: 0x01000004

ResolutionScope: 0x1a000001

TypeRefName: SecondModule.SecondModuleType

MemberRef #1 (0a000003)

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Member: (0a000003) .ctor:

CallCnvntn: [DEFAULT]

hasThis

ReturnType: Void

No arguments.

MemberRef #2 (0a000004)

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Member: (0a000004) Print:

CallCnvntn: [DEFAULT]

hasThis

ReturnType: String

No arguments.

TypeRef #5 (01000005)

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Token: 0x01000005

ResolutionScope: 0x23000001

TypeRefName: System.Console

MemberRef #1 (0a000005)

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Member: (0a000005) WriteLine:

CallCnvntn: [DEFAULT]

ReturnType: Void

1 Arguments

Argument #1: String

MemberRef #2 (0a000006)

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Member: (0a000006) ReadLine:

CallCnvntn: [DEFAULT]

ReturnType: String

No arguments.

ModuleRef #1 (1a000001)

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ModuleRef: (1a000001) SecondModule.netmodule:

Signature #1 (0x11000001)

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CallCnvntn: [LOCALSIG]

2 Arguments

Argument #1: Class SecondModule.SecondModuleType

Argument #2: String

Assembly

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Token: 0x20000001

Name : Result

Public Key :

Hash Algorithm : 0x00008004

Version: 0.0.0.0

Major Version: 0x00000000

Minor Version: 0x00000000

Build Number: 0x00000000

Revision Number: 0x00000000

Locale: <null>

Flags : [none] (00000000)

CustomAttribute #1 (0c000001)

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CustomAttribute Type: 0a000001

CustomAttributeName: System.Runtime.CompilerServices.RuntimeCompatibilityAttribute :: instance void .ctor()

Length: 30

Value : 01 00 01 00 54 02 16 57 72 61 70 4e 6f 6e 45 78 > T WrapNonEx<

: 63 65 70 74 69 6f 6e 54 68 72 6f 77 73 01 >ceptionThrows <

ctor args: ()

CustomAttribute #2 (0c000002)

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CustomAttribute Type: 0a000002

CustomAttributeName: System.Runtime.CompilerServices.CompilationRelaxationsAttribute :: instance void .ctor(int32)

Length: 8

Value : 01 00 08 00 00 00 00 00 > <

ctor args: (8)

AssemblyRef #1 (23000001)

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Token: 0x23000001

Public Key or Token: b7 7a 5c 56 19 34 e0 89

Name: mscorlib

Version: 4.0.0.0

Major Version: 0x00000004

Minor Version: 0x00000000

Build Number: 0x00000000

Revision Number: 0x00000000

Locale: <null>

HashValue Blob:

Flags: [none] (00000000)

File #1 (26000001)

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Token: 0x26000001

Name : SecondModule.netmodule

HashValue Blob : 77 48 e0 d6 b6 b3 cb 3f 94 6b ff 7f db a2 32 82 15 07 93 ed

Flags : [ContainsMetaData] (00000000)

ExportedType #1 (27000001)

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Token: 0x27000001

Name: SecondModule.SecondModuleType

Implementation token: 0x26000001

TypeDef token: 0x02000002

Flags : [Public] [AutoLayout] [Class] [AnsiClass] [BeforeFieldInit] (00100001)

User Strings

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70000001 : (27) L"Hello from the FirstModule!"

Coff symbol name overhead: 0

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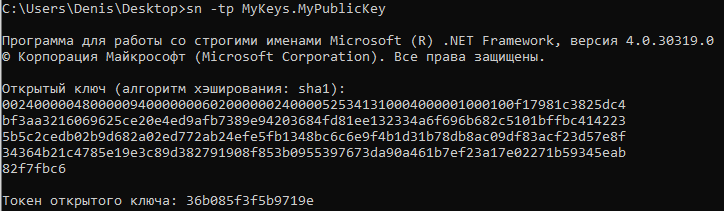
1. Генерируем файл с публичным и приватным ключами:



1. Выделяем публичный ключ в отдельный файл:



1. Смотрим публичный ключ:



1. Делаем общую подписанную сборку (сборку со строгим именем) SignedResult.exe:



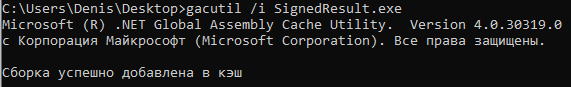
1. Смотрим содержимое сборки SignedResult через ildasm.exe:



1. Видно, что сборка подписана:



1. Добавляем сборку SignedResult в GAC (глобальный кэш сборок):



1. Выводим список всех сборок в GAC:



1. Видно, что сборка SignedResult находится в GAC:



1. Удаляем сборку SignedResult из GAC:

